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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,668	01/10/2002	Isamu Ohshita	Q67887	2949

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EXAMINER

ROY, SIKHA

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/041,668	Applicant(s) OHSHITA ET AL.	
	Examiner Sikha Roy	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,7-11 and 13-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 26 is/are allowed.
- 6) ☐ Claim(s) 1-3,7-11,13-19 and 21-25 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 18, 2006 has been entered.

Claims 1-3,7-11,13-26 are pending in the instant application.

Claims 4-6 and 12 are cancelled.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2,18,19, 22, 24 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,768,257 to Yamada et al.

Regarding claim 1 Yamada discloses (Figs. 3C, 4,5,6 column 5 lines 34-50,66,67, column 6 lines 8-346, column 7 lines 30-38) an organic EL device comprising a plurality of ITO films (lower electrode) 10 and wirings 6 disposed on an interlayer

insulating film 4, a first insulating film comprising a plurality of thickened portions 13 and top portions 14 are disposed between adjacent ones of the ITO films 10, organic EL thin film deposited 11R, 11G and 11B deposited on ITO films, a cathode film (upper electrode) 12 deposited on the ITO films. Yamada further discloses the first insulating film comprising plurality of thickened portions 13 and top portions 14 forming plurality of insulative mask supporting layers, prevent metal mask 20 used in formation of organic EL thin film and cathode film from being in contact with the pixel portion of the transparent substrate.

Regarding claim 2 Yamada discloses in Fig. 3C that the display uses TFT substrate in which ITO films and TFT layers are disposed via interlayer insulating film 4, connected to one another in an active matrix system.

Regarding claim 18 Yamada discloses (column 6 lines 8-25) the first insulating film and the thickened portion of the mask supporting layer are formed of a single material, silicon oxide. The limitation reciting 'formed in a single step' is the method of forming. The examiner notes that the method of forming the device is not germane to the issue of patentability of the device itself and hence the limitation has not been given patentable weight.

Regarding claim 19 Yamada discloses (Fig.4) the thickened portions 13 of the first insulating film are formed of mask supporting layers between the first insulating film and the interlayer insulating film.

Regarding claim 22 Yamada discloses (Fig. 9 column 10 lines 18-23) the mask-supporting layers are island-shaped.

Regarding claim 24 Yamada discloses (column 7 lines 33-37) the insulative mask supporting layers have taper-shaped side walls.

Regarding claim 25 it is clearly evident from Figs. 5A-5C of Yamada that the insulative mask supporting layers 14 are disposed such that a predetermined gap is maintained between corresponding one of the ITO film 10 and metal mask 20.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over by U.S. Patent 6,768,257 to Yamada et al.

Regarding claim 3 Yamada does not exemplify the thickened portion of the mask supporting layers formed of resist, organic resin.

But Yamada discloses the top portion of the insulating film (14) can be made of organic insulating material such as photoresist. The selection of known material for a known purpose is generally considered to be within the skill of the art. *In re Leshin* 125 USPQ 416. It would have been obvious to use organic insulating photoresist for the thickened portion of the mask supporting layers because the selection of known materials for a known purpose is within the skill of the art.

Regarding claim 21 Yamada discloses the claimed invention except for the limitation of the insulative mask supporting layers are stripe shaped. It is noted that applicant's specific stripe shape of the mask supporting layers does not solve any of the stated problems or yield any unexpected results. Thus one of ordinary skill in the art would consider the stripe shape of the insulating mask supporting layers as an obvious matter of design choice and it appears that the invention would perform equally well with the insulating bank layer of Yamada.

Regarding claim 23 Yamada discloses (column 9 lines 54-56) the insulative mask supportive layers have thickness sufficient for functioning as spacer ensured by the insulating material layer. Yamada discloses the claimed invention except for the limitation of thickness of the mask supporting layers of at least $2\mu\text{m}$. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980). Thus, it would have been obvious to one of ordinary skills in the art at the time the invention was made to have the mask supporting layer of Yamada having thickness of at least $2\mu\text{m}$, since discovering an optimum value of a result variable is considered within the skills of the art.

Claims 7 –11,13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over by U.S. Patent 6,768,257 to Yamada et al. and further in view of U.S. Patent 5,701,055 to Nagayama et al.

Regarding claim 7 Yamada discloses (Figs. 3C, 4, 5, 6 column 5 lines 34-50, 66, 67, column 6 lines 8-346, column 7 lines 30-38) an organic EL device comprising a plurality of ITO films (lower electrode) 10 and wirings 6 disposed on an interlayer insulating film 4, a first insulating film 13 is disposed between adjacent ones of the ITO films 10, organic EL thin film deposited 11R, 11G and 11B deposited on ITO films, a cathode film (upper electrode) 12 deposited on the ITO films. Yamada further discloses (Figs. 2 and 4) a plurality of insulative mask supporting layer (ribs) 14 disposed in a stripe pattern on the first insulating film 13, the mask supporting layers preventing metal mask 20 used in formation of organic EL thin film and cathode film from being in contact with the pixel portion of the transparent substrate.

Claim 7 differs from Yamada in that Yamada does not exemplify the plurality of insulative mask supporting layers protruding in a reverse tapered shape from the insulating film.

Nagayama in analogous art of organic electroluminescent display discloses (Figs. 9A-9C, column 9 lines 56 through column 10 line 14) organic display device formed with plurality of insulative mask supporting layers (ramparts) 7 formed in a reverse tapered shape, the ramparts servicing as spacer to the organic EL medium the mask formed on the rampart cannot damage the organic function layer. Nagayama further discloses (column 10 lines 45-53) that because of the reverse tapered shape of the ramparts, the deposition of the organic EL medium at the root of the rampart is efficient for the wide spread organic function layer preventing short-circuit between the ITO anode and the cathode formed later.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the plurality of insulative mask supporting layers of Yamada protruding in a reverse tapered shape as suggested by Nagayama for providing the organic EL material flowing around the base of the mask supporting layers and thus preventing any contact between the anode and the cathode.

Regarding claim 8 Yamada discloses (column 6 lines 8-25 Fig. 4) the insulative mask supporting layers 14 and the first insulating layer 13 are formed from silicon oxide.

Referring to claim 9 Yamada discloses the insulative mask supporting layers are formed on the first insulating layer.

Regarding claim 10 Yamada discloses the claimed invention except for the limitation of the insulative mask supporting layers are stripe shaped. It is noted that applicant's specific stripe shape of the mask supporting layers does not solve any of the stated problems or yield any unexpected results. Thus one of ordinary skill in the art would consider the stripe shape of the insulating mask supporting layers as an obvious matter of design choice and it appears that the invention would perform equally well with the insulating mask supporting layer of Yamada.

Regarding claim 11 Yamada discloses (Fig. 9 column 10 lines 18-23) a different embodiment with island-shaped mask-supporting layers.

Regarding claim 13 Yamada discloses (column 9 lines 54-56) the insulative mask supportive layers have thickness sufficient for functioning as spacer ensured by the insulating material layer. Yamada discloses the claimed invention except for the

limitation of thickness of the mask supporting layers of at least 2 μ m. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980). Thus, it would have been obvious to one of ordinary skills in the art at the time the invention was made to have the mask supporting layer of Yamada having thickness of at least 2 μ m, since discovering an optimum value of a result variable is considered within the skills of the art.

Regarding claim 14 Yamada discloses (column 7 lines 33-37) the insulative mask supporting layers have taper-shaped side walls.

Regarding claim 15 Yamada discloses the claimed invention having both of the first insulating layer and mask supporting layer formed of same material of inorganic silicon oxide film. Yamada does not disclose the limitation reciting 'the insulative mask supporting layers constituted by locally thickened portion of the first insulating layer'. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the first insulating film and the plurality of mask supporting layers with thickened portions as one piece since the use of a one piece construction instead of the structure disclosed in the prior art would be merely a matter of obvious engineering choice.

Regarding claim 16 Yamada discloses the insulative mask supporting layers 14 are formed on the first insulating film 13.

Regarding claim 17 it is clearly evident from Figs. 5A-5C of Yamada that the insulative mask supporting layers 14 are disposed such that a predetermined gap is maintained between corresponding one of the ITO film 10 and metal mask 20.

Allowable Subject Matter

Claim 26 is allowed over the prior art of record.

Regarding claim 26 the prior art of record neither teaches nor suggests an organic EL display with all the limitations as claimed and particularly comprising the first insulating film completely covering the mask supporting layers.

Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 20 the prior art of record neither teaches nor suggests an organic EL display with all the limitations as claimed and particularly comprising the first insulating film completely covering the mask supporting layers.

Response to Argument

Applicant's arguments regarding claim 1 have been fully considered but they are moot in view of new ground of rejection.

Applicant's arguments with respect to claim 7 have been considered but are not persuasive.

In response to applicant's argument that insulative mask supporting layers 14 are not disposed in stripe pattern the examiner respectfully disagrees. Yamada discloses in Fig. 2 the mask supporting layers 14 are disposed on the first insulating film 13 in a stripe pattern and hence the rejection of claim 7 is proper.

In Fig. 9 Yamada discloses (column 10 lines 15-29) the mask supporting layers (insulating material 14' and a conductive material 14b) formed only at junctions but this configuration corresponds to different embodiment.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sikha Roy

Sikha Roy
Patent Examiner
Art Unit 2879